

CLAIMS

1. A method of recording teletext data on a record carrier using a recording apparatus having a bandwidth of less than the standard teletext data rate comprising the steps of
- receiving teletext data at the standard data rate,
 - converting the teletext data to a multilevel code, at a data rate which falls within the bandwidth of the recording apparatus, and
 - recording the multilevel code on the record carrier.
2. A method as claimed in Claim 1 in which the multilevel code comprises a signal having more than two amplitude levels.
3. A method as claimed in Claim 1 or 2 in which the multilevel code has four levels and the data rate is half the standard teletext data rate.
4. A method as claimed in Claim 1 or 2 in which the multilevel code has eight levels and the data rate is one third of the standard teletext data rate.
5. A method of replaying teletext data from a record carrier using replay apparatus having a bandwidth of less than the standard teletext data rate, the teletext data being recorded on the record carrier by means of a multilevel code at a data rate which is lower than the standard teletext data rate, the method comprising the steps of
- reading the multilevel code from the record carrier,
 - converting the multilevel code to standard teletext data, and
 - applying the teletext data to a teletext encoder.
6. Apparatus for recording teletext data on a record carrier, said apparatus having a bandwidth of less than the standard teletext data rate, the apparatus comprising means for receiving a video signal including teletext

data, means for detecting received valid teletext data, means for encoding the received teletext data into a multi-level code at a data rate which is less than the standard teletext data rate, and means for recording the multilevel code on the record carrier.

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7. Apparatus as claimed in Claim 6 in which the means for encoding teletext data comprises means for applying the received teletext data to an encoder in n-bit packets, where n is greater than one, means for converting each n-bit packet into a multilevel code having at least one level for each n-bit combination, and means for feeding the multibit code to the record head of the recorder at a data rate of 1/n times the standard teletext data rate.

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8. Apparatus as claimed in Claim 6 in which $n=2$.

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9. Apparatus as claimed in Claim 6 in which $n=3$.

10. Apparatus as claimed in any of Claims 6 to 9 in which a buffer RAM is connected between the means for detecting teletext data and the encoder.

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11. Apparatus as claimed in Claim 10 in which the buffer RAM receives only teletext data packets and the encoder includes means for generating the clock run in and framing code.

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12. Apparatus as claimed in any of Claims 6 to 11 in which the multilevel code comprises a plurality of amplitude levels.

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13. Apparatus for replaying teletext data from a record carrier, the teletext data being encoded by means of a multilevel code at a data rate less than the standard teletext data rate, the apparatus comprising means for feeding the multilevel code signal to a decoder which is arranged to convert the

multilevel code to a binary code at the standard teletext data rate and means for multiplexing the binary code with the video signal for application to a teletext decoder.

5 14. Apparatus as claimed in Claim 13 in which the multilevel code is a four level code and the decoder produces two bits from each four level code.

10 15. Apparatus as claimed in Claim 13 in which the multilevel code is an eight level code and the decoder produces three bits from each eight level code.

16. Apparatus as claimed in any of claims 13 to 15 in which data from the decoder is written into a buffer RAM.

15 17. Apparatus as claimed in Claim 16 comprising a teletext encoder, the teletext encoder being arranged to receive data from the buffer RAM.

18. Apparatus as claimed in Claim 16 in which the teletext encoder includes means for generating the clock run-in and framing code.

20 19. Apparatus as claimed in any of Claims 13 to 18 in which the decoder includes an equaliser.

25 20. Apparatus as claimed in Claim 19 in which the equaliser is a decision feedback equaliser.

21. Apparatus as claimed in any of Claims 13 to 20 in which the multilevel code comprises a plurality of amplitude levels.